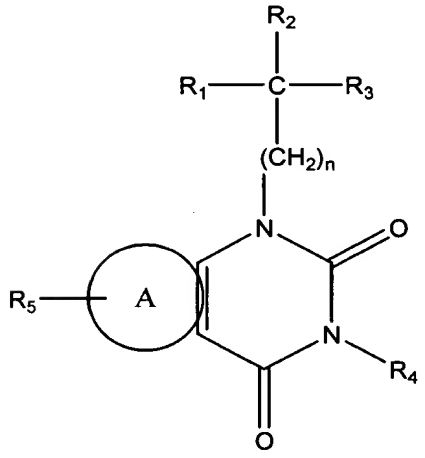
AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

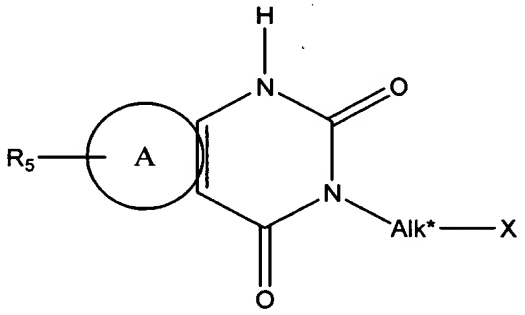
LISTING OF CLAIMS:

1 – 6. (Canceled)

7. (Currently Amended) A method of inhibiting collagenase/MMP activities in a mammal comprising administering to the mammal in need thereof an effective amount of one or more ~~compounds of claim 1~~ polycyclic (pyrimidine-2,4(1H, 3H)-diones) with functionalized alkyl groups in the 1-, 3-, or both positions with the general structures Ia and Ib,



(Ia)



(Ib)

where:

R^1 is hydrogen, methyl, or ethyl;

R^2 is hydrogen or methyl;

R^3 is mercapto or hydroxyaminoacylalkylthio (-SAlkCONHOH);

Alk is C_1-C_5 branched or unbranched alkyl;

R^4 is hydrogen, benzyl, or phenyl;

n is 0, 1 or 2;

Alk* is C_2-C_{12} branched or unbranched alkylene, with the exception of 3-methylpropylene [-CH_2-CH_2-CH(CH_3)-];

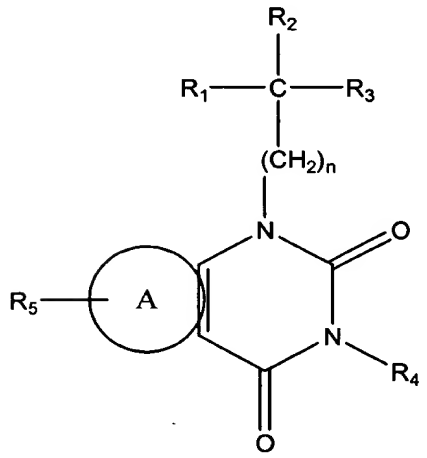
X is mercapto or hydroxyaminoacylalkylthio (-SAlkCONHOH);

A is an annealed benzene ring or a 2,3-annealed thiophene ring, wherein the 4,5-positions are optionally substituted with methyl groups or are optionally annealed with a cyclopentene, cyclohexene, or cycloheptene ring,

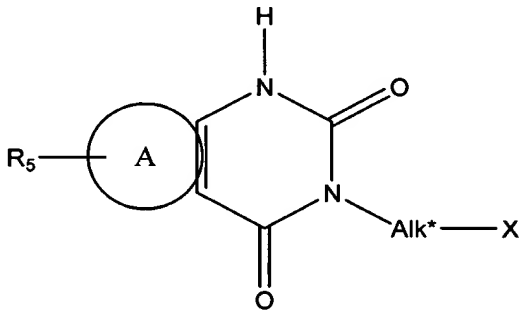
R^5 is hydrogen, 6-methyl, 8-methyl, 6-fluoro, 6-choloro, 6-bromo, 6-methylthio, or 6,7-dimethoxy,

as well as the tautomers and pharmacologically relevant salts of these compounds.

8. (Currently Amended) A method of inhibiting tumor metastasis and invasion in a mammal comprising administering to the mammal in need thereof an effective amount of one or more ~~compounds of claim 1~~ polycyclic (pyrimidine-2,4(1H, 3H)-diones) with functionalized alkyl groups in the 1-, 3-, or both positions with the general structures Ia and Ib,



(Ia)



(Ib)

where:

R^1 is hydrogen, methyl, or ethyl;

R^2 is hydrogen or methyl;

R^3 is mercapto or hydroxyaminoacylalkylthio (-SAlkCONHOH);

Alk is C_1-C_5 branched or unbranched alkyl;

R^4 is hydrogen, benzyl, or phenyl;

n is 0, 1 or 2;

Alk* is C_2-C_{12} branched or unbranched alkylene, with the exception of 3-methylpropylene [-CH_2-CH_2-CH(CH_3)-];

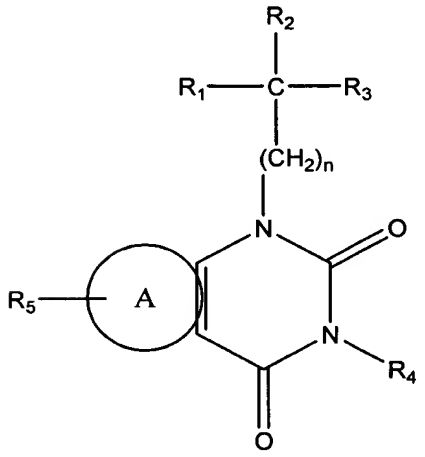
X is mercapto or hydroxyaminoacylalkylthio (-SAlkCONHOH);

A is an annealed benzene ring or a 2,3-annealed thiophene ring, wherein the 4,5-positions are optionally substituted with methyl groups or are optionally annealed with a cyclopentene, cyclohexene, or cycloheptene ring,

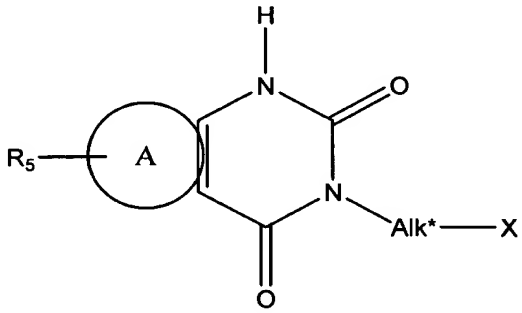
R^5 is hydrogen, 6-methyl, 8-methyl, 6-fluoro, 6-choloro, 6-bromo, 6-methylthio, or 6,7-dimethoxy,

as well as the tautomers and pharmacologically relevant salts of these compounds.

9. (Currently Amended) A method of treating UV-induced erythema in a mammal comprising administering to the mammal in need thereof an effective amount of one or more ~~compounds of claim 1~~ polycyclic (pyrimidine-2,4(1H, 3H)-diones) with functionalized alkyl groups in the 1-, 3-, or both positions with the general structures Ia and Ib,



(Ia)



(Ib)

where:

R^1 is hydrogen, methyl, or ethyl;

R^2 is hydrogen or methyl;

R^3 is mercapto or hydroxyaminoacylalkylthio (-SAlkCONHOH);

Alk is C_1-C_5 branched or unbranched alkyl;

R^4 is hydrogen, benzyl, or phenyl;

n is 0, 1 or 2;

Alk* is C_2-C_{12} branched or unbranched alkylene, with the exception of 3-methylpropylene [$-CH_2-CH_2-CH(CH_3)-$];

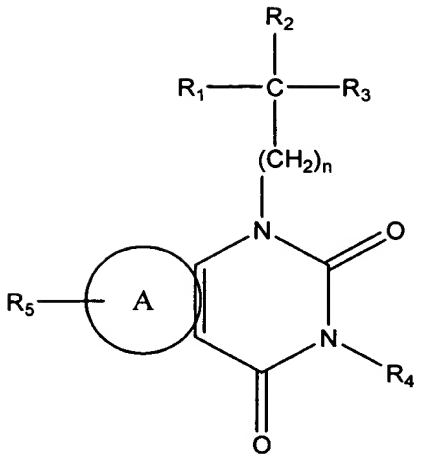
X is mercapto or hydroxyaminoacylalkylthio (-SAlkCONHOH);

A is an annealed benzene ring or a 2,3-annealed thiophene ring, wherein the 4,5-positions are optionally substituted with methyl groups or are optionally annealed with a cyclopentene, cyclohexene, or cycloheptene ring,

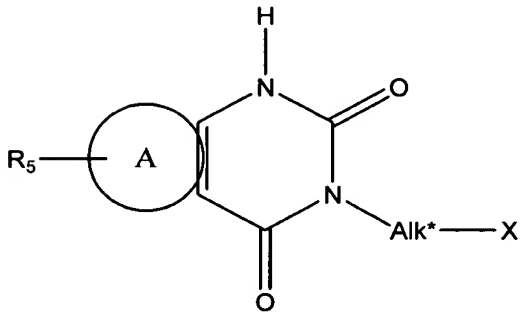
R^5 is hydrogen, 6-methyl, 8-methyl, 6-fluoro, 6-choloro, 6-bromo, 6-methylthio, or 6,7-dimethoxy,

as well as the tautomers and pharmacologically relevant salts of these compounds.

10. (Currently Amended) A method of treating rheumatic diseases ~~diseseas~~ in a mammal comprising administration to the mammal in need thereof an effective amount of one or more ~~compounds of claim 1~~ polycyclic (pyrimidine-2,4(1H, 3H)-diones) with functionalized alkyl groups in the 1-, 3-, or both positions of the general structures Ia and Ib,



(Ia)



(Ib)

where:

R^1 is hydrogen, methyl, or ethyl;

R^2 is hydrogen or methyl;

R^3 is mercapto or hydroxyaminoacylalkylthio (-SAlkCONHOH);

Alk is C_1-C_5 branched or unbranched alkyl;

R^4 is hydrogen, benzyl, or phenyl;

n is 0, 1 or 2;

Alk* is C_2-C_{12} branched or unbranched alkylene, with the exception of 3-methylpropylene [$-CH_2-CH_2-CH(CH_3)-$];

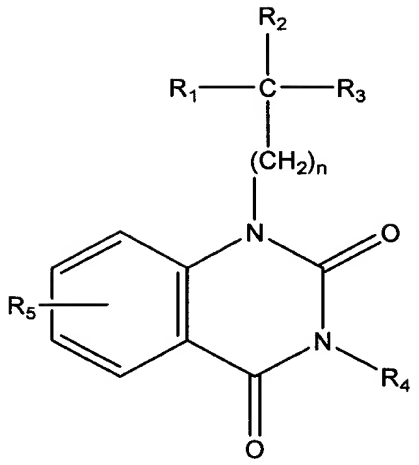
X is mercapto or hydroxyaminoacylalkylthio (-SAlkCONHOH);

A is an annealed benzene ring or a 2,3-annealed thiophene ring, wherein the 4,5-positions are optionally substituted with methyl groups or are optionally annealed with a cyclopentene, cyclohexene, or cycloheptene ring,

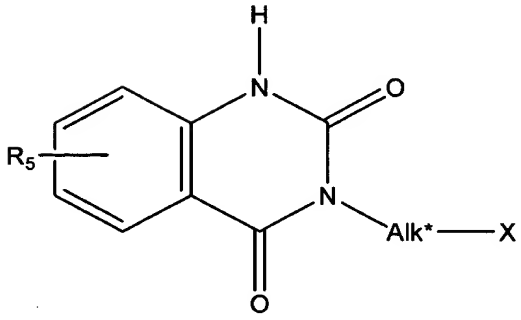
R^5 is hydrogen, 6-methyl, 8-methyl, 6-fluoro, 6-choloro, 6-bromo, 6-methylthio, or 6,7-dimethoxy,

as well as the tautomers and pharmacologically relevant salts of these compounds.

11. (New) The method of claim 7, wherein the one or more polycyclic (pyrimidine-2,4(1H, 3H)-diones) are compounds of the general structures IIa and IIb



(IIa)

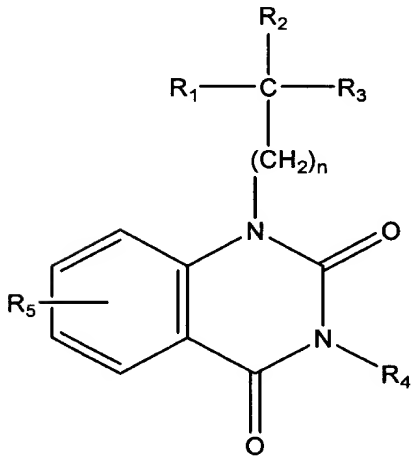


(IIb)

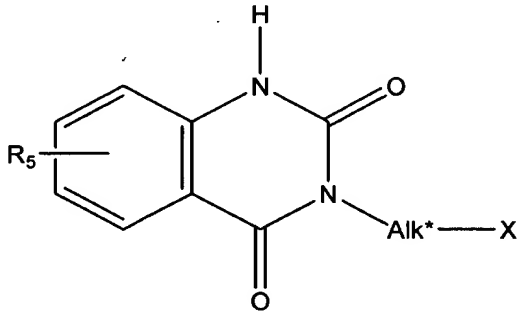
where

R^1, R^2, R^3, R^4, R^5, Alk, Alk*, n, and X are defined as in claim 7, including their tautomers and pharmacologically relevant salts.

12. (New) The method of claim 8, wherein the one or more polycyclic (pyrimidine-2,4(1H, 3H)-diones) are compounds of the general structures IIa and IIb



(IIa)

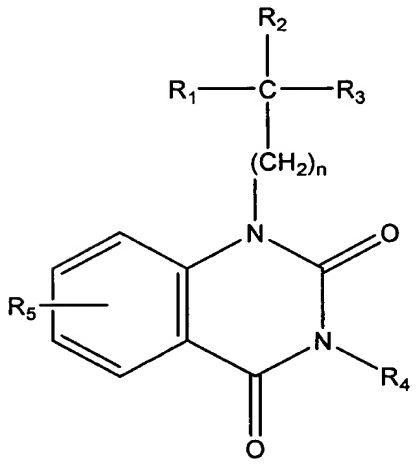


(IIb)

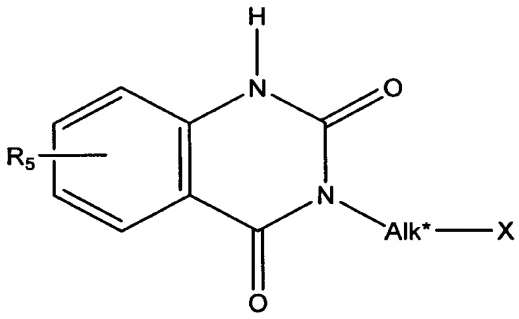
where

R^1, R^2, R^3, R^4, R^5, Alk, Alk*, n, and X are defined as in claim 8, including their tautomers and pharmacologically relevant salts.

13. (New) The method of claim 9, wherein the one or more polycyclic (pyrimidine-2,4(1H, 3H)-diones) are compounds of the general structures IIa and IIb



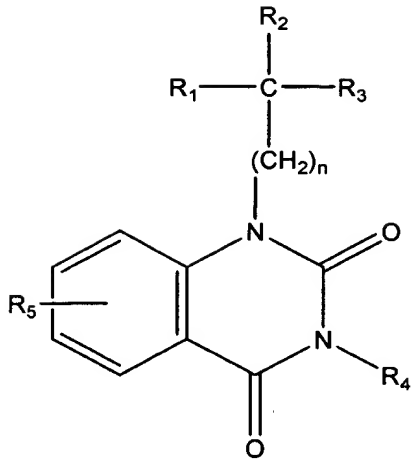
(IIa)



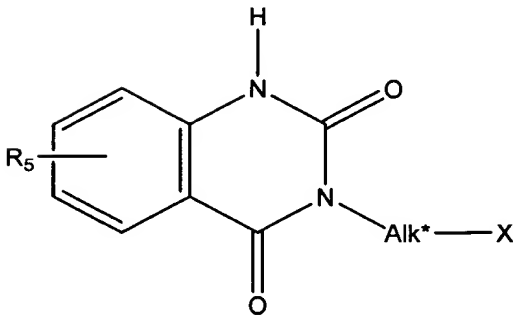
(IIb)

where
R^1, R^2, R^3, R^4, R^5, Alk, Alk*, n, and X are defined as in claim 9, including their tautomers and pharmacologically relevant salts.

14. (New) The method of claim 10, wherein the one or more polycyclic (pyrimidine-2,4(1H, 3H)-diones) are compounds of the general structures IIa and IIb



(IIa)



(IIb)

where

R^1, R^2, R^3, R^4, R^5, Alk, Alk*, n, and X are defined as in claim 10, including their tautomers and pharmacologically relevant salts.